



RANGER



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PIN AND SOCKET CONNECTOR - PUSH/PULL OR BREAKAWAY



Ranger's quick and easy mate and unmate feature makes it ideal for use in soldier-worn, harsh environment applications.

This rugged, light-weight, multipurpose connector can be used for signal and power applications. Multi-pin configurations are coming soon.

FEATURES & BENEFITS:

- Push/Pull Locking and Breakaway
- Function IP-68 & IP69K, >5,000 mating cycles
- Operating Temp Range:
-60°F to 257°F (-51°C to +125°C)
- Aluminum ruthenium plated body – lightweight yet rugged
- Diameter of male and female connector is smaller than a penny
- Custom Cable Assembly Available



HOW TO ORDER

Exmple Part Number : NX-A10YAR-P03XJG0-0000

1.	2.	3.	4.	5.	6.	7.		8.	9.	10.	11.		12.
Connector	Type	Style	Size	Version	Keying	Housing Material	Insulator	Contact Count	Contact Type	Contact Diameter	Termination Cross Section		Ground Tag
NX-	A	1	0	Y	A	R-	P	03	X	J	G	0-000	0

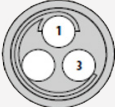
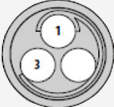
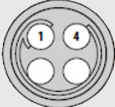
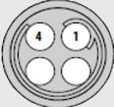
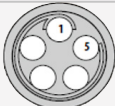
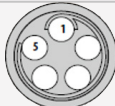
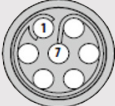
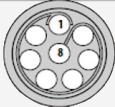
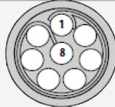
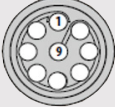
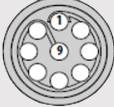
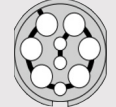
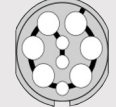
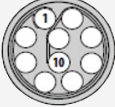
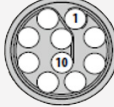
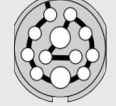
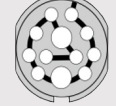
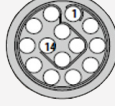
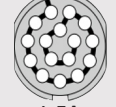
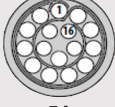
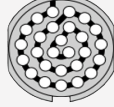
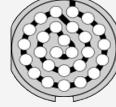
1. Connector		2. Type		3. Style		4. Size		5. Version	
NX-	Ranger	A	Breakaway Plug	1	Cable Mount	Varies Based on P/N		W	High Density
		K	Breakaway Receptacle	8	Low Profile Outside Rear Panel			Y	Standard
		S	Push-pull Plug	K	Low Profile Inside Rear Panel				
		G	Push-pull Receptacle	W	Docking (Panel) Plug				
				6	Cable and Panel Mount				

6. Keying		7. Housing Material		8. Contact Count		9. Contact Type		10. Contact Diameter	
A	Brown	R	Ruthenium over Nickel (Standard – Aluminum)	02		U	Socket w/ PC Tail	B	0.3mm
B	Red			03		V	Pin w/ PC Tail	C	0.5mm
C	Blue	M	Ruthenium Over Nickel (HD – Brass)	04		W	Socket w/ Solder cup	F	0.7mm
D	Green			05		X	Pin w/ Solder cup	J	0.9mm
				06				M	6x0.3mm 4x0.5mm
				Up to 27				P	1.3mm
								T	2.0mm

11. Solder Cup		12. Ground Tag	
D	26AWG	0	No
G	22AWG	L	Yes
H	20AWG		
M	28AWG 24AWG		
S	14AWG		



CONTACT CONFIGURATION

Number of Contacts	Size 0 (Standard)		Size 0 (HD)		Size 1 (Standard)		Size 1 (HD)	
	Male	Female	Male	Female	Male	Female	Male	Female
3	 10A	 400V						
4	 7A	 300V						
5					 10A	 450V		
7	 5A	 300V						
8					 7A	 333V		
9	 5A	 200V	 1A	 750V				
10	 5A	 20 V						
12			 1, 5A	 750V				
14					 14	 14		
16			 1,5A	 750V	 5A	 300V		
27							 1A	 750V

CONTACT CONFIGURATION:

Size 0 Standard

Size	Insulator	Number of Contacts	Contact Diameter	Nominal current load per contact	Test Voltage	Rated Voltage	Termination	
			mm	A	kV	kV	Solder	PCD
0	P	03	0.9	10	1.200	0.400	•	•
0	P	04	0.7	7	0.900	0.300	•	•
0	P	07	0.5	5	0.900	0.300	•	•
0	P	09	0.5	5	0.600	0.200	•	•
0	P	10	0.5	5	0.600	0.200	•	•

Size 1 Standard

Size	Insulator	Number of Contacts	Contact Diameter	Nominal current load per contact	Test Voltage	Rated Voltage	Termination	
			mm	A	kV	kV	Solder	PCD
1	P	05	0.9	10	1.350	0.450	•	•
1	P	08	0.7	7	1.000	0.333	•	•
1	P	14	0.5	5	0.900	0.300	•	•
1	P	16	0.5	5	0.900	0.300	•	•

Size 0 High Density

Number of Contacts	Available Connector Styles		Contact Type		Part Number Key				Contact Diameter	Termination Cross Section		Contact Current Recommend	Test Voltage
				Termination					mm	AWG	mm²	A	VDC
09	K1	GK	Socket	Solder	W	M	M	0	3x0.3 6x0.7	28 22	0.08 0.38	15	0.750
	A1	-	Pin	Solder	X	M	M	0		28 22	0.08 0.38		
12	K1	GK	Socket	Solder	W	M	M	0	10x0.3 2x.07	28 22	0.08 0.38	15	0.750
	A1	-	Pin	Solder	X	M	M	0		28 22	0.08 0.38		
16	K1	GK	Socket	Solder	W	B	C	0	0.3	28	0.08	1	0.750
	A1	-	Pin	Solder	X	B	C	0		28	0.08		

Size 1 High Density

Number of Contacts	Available Connector Styles		Contact Type		Part Number Key				Contact Diameter	Contact Current Recommend	Test Voltage	Termination Cross Section	
				Termination					mm	A	VDC	AWG	mm²
27	K1	GK	Socket	Solder	W	B	C	0	0.3	1	0.750	28	0.08
	A1	-	Pin	Solder	X	B	C	0				28	0.08

CONTACT SPECIFICATIONS, STANDARD RANGER TECH DATA:

Environmental and Testing

Type	Performance	Standard
Tightness	IP68 / 1m IP 69K	IEC 60529 / MIL-STD-810F 512.4/5 DIN 40050-9
Sand and Dust	Blowing sand and dust, settling dust	MIL-STD-810F 510.4/5 Procedure I / II DIN 40050-9 / IP6kx
Operating Temperature	-51°C up to +125°C	IEC 60512-6-11i+j
Thermal Shock	-65°C up to +150°C	EIA 364-32-E IEC 60068-2-14
Humidity Cyclic	85% up to 95% 28 up to 71°C	MIL-STD-1344A Method 1002.2 Type III IEC 60068-2-38
Low Pressure (Rapid Decompression)	59.1 kPa to 18.8 kPa	AECTP 300, 312 Procedure III (STANAG 4370)
Low Pressure	57.2 kPa -55°C	MIL-STD-810F 500.4/5 IEC 60068-2-40
Icing	Rime ice 6mm	MIL-STD-810F 521.2/3
Corrosion Resistance	96h salt mist, 5% salt solution 35°C	EIA-364-26B STANAG 4370, AECTP 300-309 MIL-STD810F 509.4/5
Mold Growth	European fungus	IEC 60068-2-10
Solar Radiation		60068-2-5
Chemical Endurance	Several substances	ISO 16750-5

Mechanical Data

Type	Performance	Standard
Mechanical Endurance	5,000 mating cycles	IEC 60512-5-9-a EIA-364-09
Vibration		MIL-STD 1344 Method 2005 EIA-364-28
Shock	100g amplitude, half sine pulse of 3 ms, no discontinuity > 1 µs	MIL-STD 1344 Method 2004 EIA-364-27

Electrical Data

Type	Performance	Standard
Contact resistance (over 5,000 mating cycles)	Contact diameter / resistance Ø 0.5mm <5 mOhm Ø 0.7mm <4 mOhm Ø 0.9mm <4 mOhm Ø 1.3mm <3 mOhm Ø 2.0mm <3 mOhm	IEC 60512-2-1
Shell resistance	<5 mOhm	IEC 60512-2-1
Insulation resistance	> 100 mOhm	IEC 60512-3-1
Shielding effectiveness	> 65 dB	VG 95214-11

MATERIAL AND SURFACE TREATMENTS, STANDARD RANGER:

Type	Material	Surface
Housing (Conductive parts)	Aluminum Alloy	Ruthenium over Electroless Nickel
Housing / nut (Nonconductive parts)	Aluminum Alloy	Black Anodized
Back shell (Push-Pull plug)	Aluminum Alloy	Ruthenium over Electroless Nickel
Back shell (Break-Away plug and in-line receptacle)	Aluminum Alloy	Electroless Nickel
EMC-locking ring	Copper Alloy	Electrodeposited Nickel
Crimp sleeve	Copper Alloy	Electrodeposited Nickel
Insulator	PEEK (standard)	
Pin contact	Copper Alloy	1.27 µm Gold over Electrodeposited Nickel
Socket contact	Copper Alloy	1.27 µm Gold over Electrodeposited Nickel
O-rings	Silicon Rubber	

CONTACT SPECIFICATIONS, RANGER HIGH DENSITY TECH DATA:

Environmental and Testing

Type	Performance	Standard
Tightness	IPX8 / 20 m 120 min IPX9K	ISO 20653:2013-02 MIL-STD-810G:2008-10 512.5 ISO 20653:2013-02
Sand and Dust	Blowing sand and dust IP6KX (settling dust)	MIL-STD-810G:2008-10 510.5 Procedure I / II ISO 20653:2013-02
Operating Temperature	-51°C up to +125°C	IEC 60068-2-1:2007-05 IEC 60068-2-2:2007-10
Thermal Shock	-51°C up to +125°C	MIL-STD-810G:2014-04 503.6
Humidity Cyclic	85% r.h. up to 95% r.h., 28°C up to 71°C	EIA-364-31E:2017-04 Method V
Low Pressure (Rapid Decompression)	59.1 kPa to 18.8 kPa	NATO-AECTP 300:2006-01 312 Procedure III
Low Pressure (operation)	57.2 kPa, -55°C	MIL-STD-810G:2008-10 500.5
Icing	Rime ice 6mm	MIL-STD-810G:2008-10 521.3
Corrosion Resistance	96 h salt mist, 5% salt solution, 35°C (2 cycles - 24h spray / 24 h dry)	MIL-STD-810G:2008-10 509.5
Mold Growth	European fungus	IEC 60068-2-10:2005-06
Solar Radiation	Ground level, procedure A	IEC 60068-2-5:2018-04

Mechanical Data

Type	Performance	Standard
Mechanical Endurance	5,000 mating cycles	IEC 60512-9-1:2010-03
Vibration	15g (sine) 10-2,000 Hz No discontinuity > 1 µs	EIA-364-28F:2011-02
Shock	50g amplitude, half sine pulse of 6 ms, no discontinuity > 1 µs	EIA-364-27C:2011-06

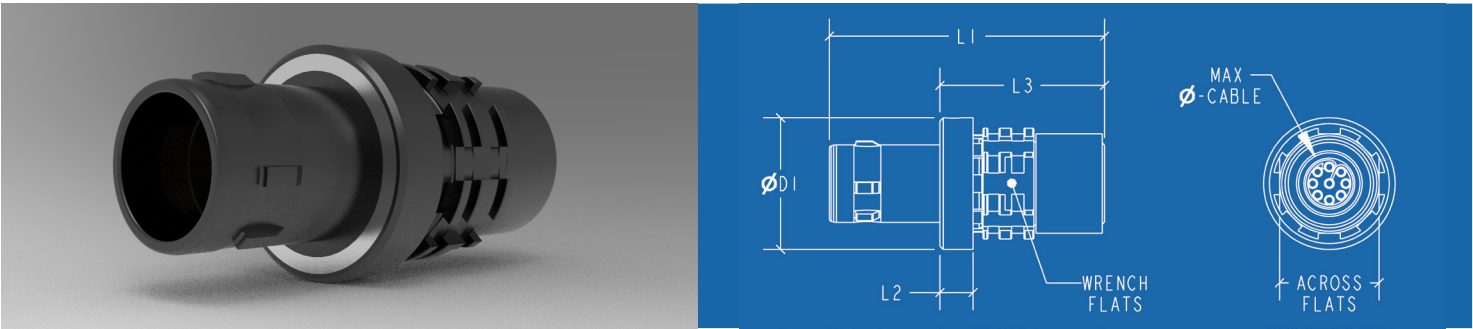
Electrical Data

Type	Performance	Standard
Contact resistance (over 5,000 mating cycles)	Contact diameter / resistance Ø 0.3mm <10mOhm Ø 0.5mm <5 mOhm Ø 0.7mm <4 mOhm	IEC 60512-2-1 2002-02
Shell resistance	<5 mOhm	IEC 60512-2-1 2002-02
Insulation resistance	> 100 mOhm	IEC 60512-3-1 2002-02
Shielding effectiveness	> 65 dB	IEC 62153-4-4 2015-04

MATERIAL AND SURFACE TREATMENTS, HIGH DENSITY RANGER:

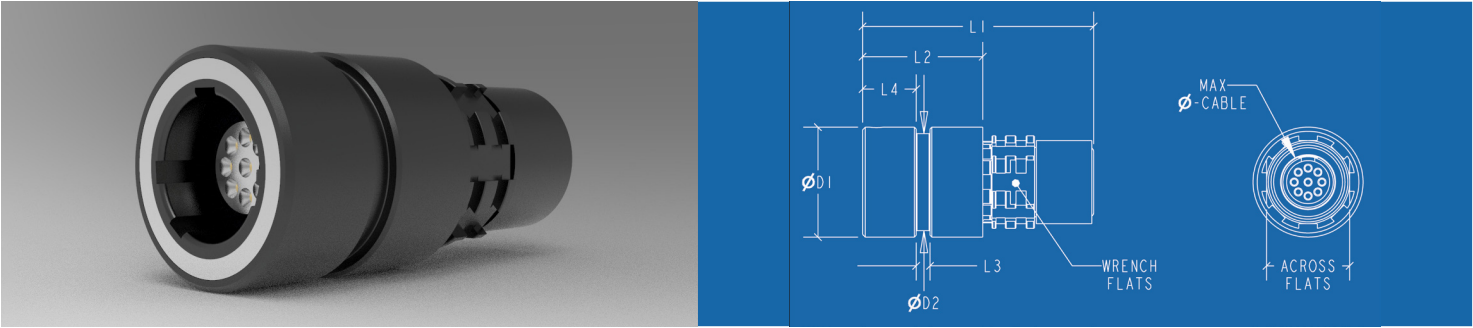
Type	Material	Surface
Housing (Conductive parts)	Brass	Ruthenium over Electroless Nickel
Housing / nut (Nonconductive parts)	Brass	Black Zinc Nickel
Back shell (Push-Pull plug)	Brass	Ruthenium over Electroless Nickel
Back shell (Break-Away plug and in-line receptacle)	Brass	Electroless Nickel
EMC-locking ring	Copper Alloy	Electrodeposited Nickel
Crimp sleeve	Copper Alloy	Electrodeposited Nickel
Insulator	PEEK (standard)	
Pin contact	Copper Alloy	1.27 µm Gold over Electrodeposited Nickel
Socket contact	Copper Alloy	1.27 µm Gold over Electrodeposited Nickel
O-rings	Fluororsilicone Rubber	

MEASUREMENTS, STANDARD RANGER BREAK-AWAY PLUG



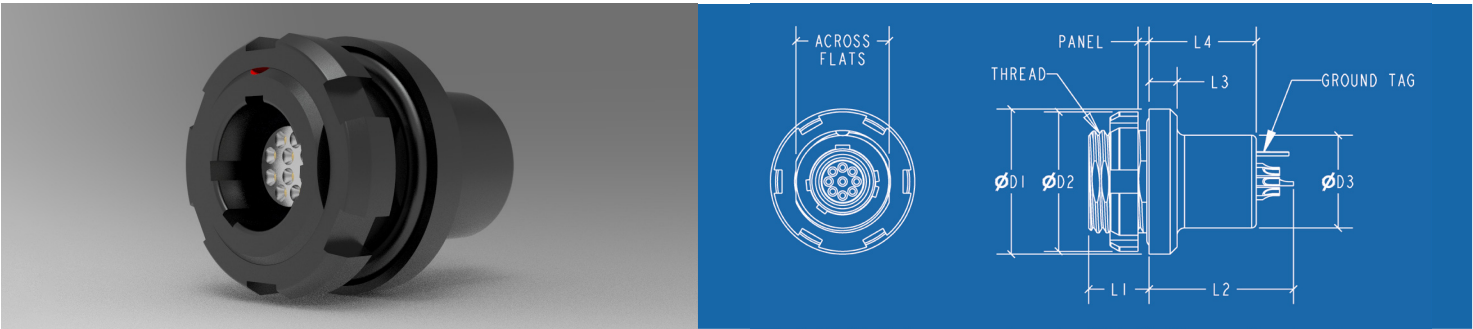
Size (mm)	L1 (mm)	L2 (mm)	L3 (mm)	D1 (mm)	AF A (mm)	Max Ø-Cable (mm)
0	25.0	3.0	15.0	11.9	9	5.5
1	29.2	3.5	18.4	13.9	11	6.5

MEASUREMENTS, STANDARD IN-LINE RECEPTACLE



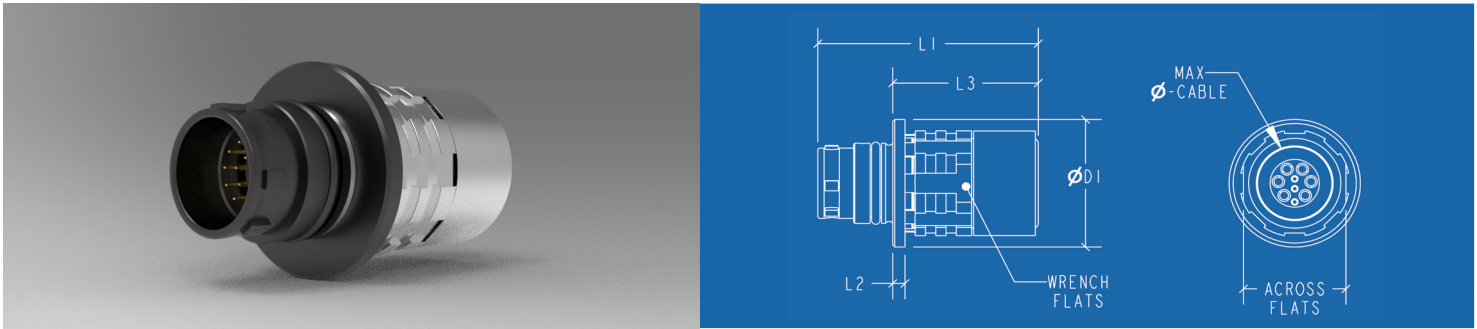
Size (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	D1 (mm)	D2 (mm)	AF A (mm)	Max Ø-Cable (mm)
0	25.0	13.0	1.5	5.8	11.9	10.5	9	5.5
1	27.0	12.1	1.5	5.8	13.9	12.5	11	6.5

MEASUREMENTS, STANDARD PANEL MOUNT RECEPTACLE



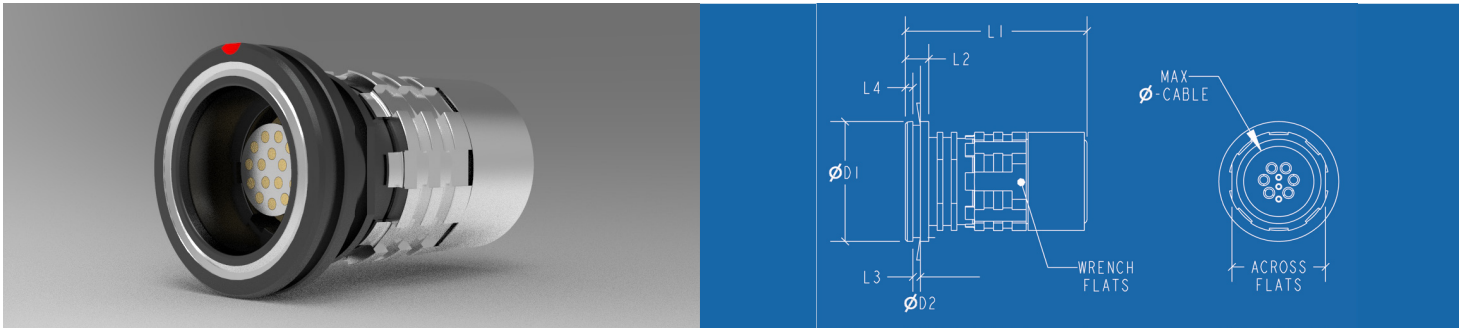
											Panel Cut Out	
Size (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	X Max. (mm)	D1 (mm)	D2 (mm)	D3 (mm)	AF A (mm)	M (mm)	AF A (mm)	Ø (mm)
0	25.0	3.0	15.0	11.5	3.0	11.9	15.0	10.0	9	11 x 0.75	10.1	11.1
1	29.2	3.5	18.4	14.5	3.5	13.9	17.9	12.0	11	14 x 1	13.1	14.1

MEASUREMENTS, HIGH DENSITY RANGER BREAK-AWAY PLUG



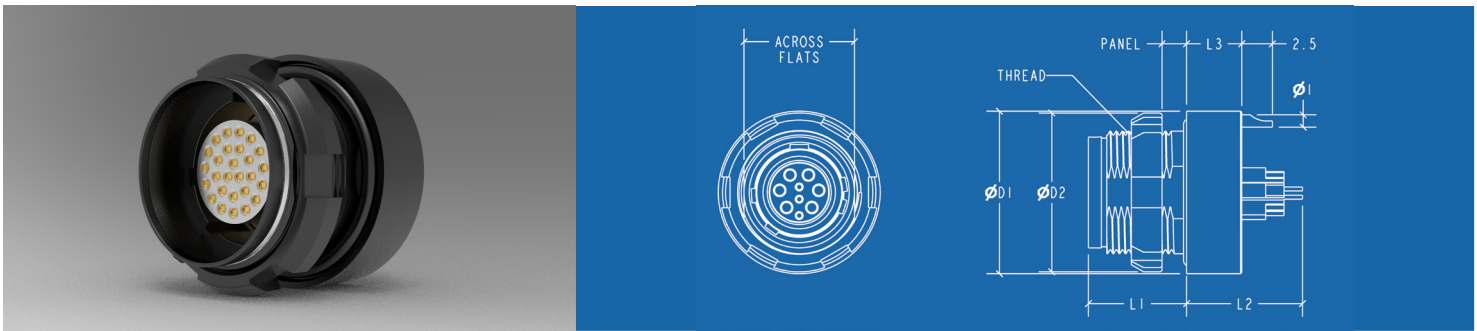
Size (mm)	L1 (mm)	L2 (mm)	L3 (mm)	D1 (mm)	AF A (mm)	Max Ø-Cable (mm)
0	21.5	1.2	14.2	12.8	10	7
1	25.2	1.2	18.2	14.8	12	8.5

MEASUREMENTS, HIGH DENSITY IN-LINE RECEPTACLE



Size (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	D1 (mm)	D2 (mm)	AF A (mm)	Max Ø-Cable (mm)
0	19.5	2.5	0.8	0.8	12.8	12	10	7
1	23.5	2.5	0.8	0.8	14.8	14	12	8.5

MEASUREMENTS, HIGH DENSITY PANEL MOUNT RECEPTACLE



									Panel Cut Out	
Size (mm)	L1 (mm)	L2 (mm)	L3 (mm)	X Max. (mm)	D1 (mm)	D2 (mm)	AF A (mm)	M (mm)	AF A (mm)	Ø (mm)
0	8	8.7	4.5	4	13.2	13	9	10 x 0.5	9.1	10.1
1	8	10.2	4.5	4	15.3	15	11.5	12 x 0.5	11.6	12.1

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